

## **REMARKS**

In this Amendment, withdrawn claims 56-61 and 63-66 are canceled. Dependent claim 8 is canceled, and its limitation is added to base claim 1.

### **Independent Claim 1**

Claim 1 recites catalyzing electrochemical oxidation of organic molecules using a catalyst. As amended, claim 1 requires the catalyst to comprise a mixture of platinum, about 1 to about 48% by weight of cobalt, and tin. This claimed catalyst is not suggested by the cited references to Richter (US Patent No. 4,126,934) and to Attard (WO98/37997).

Specifically, the primary reference to Richter suggests neither the claimed 1-48% cobalt nor the claimed tin. In fact, Richter teaches away from including cobalt by referring to cobalt as an "inactive component" that is "dissolved out" when the catalyst is made (col. 2, lines 1 and 16-19). Although Richter's "inactive component is not dissolved out completely and the active catalytic layer may still contain small quantities of the inactive component" (col. 4, lines 15-18), Richter guides the skilled person to keep the remaining cobalt ("inactive metal") to a minimum – understood by the skilled person to mean below the claimed 1-48% range – by blaming catalyst corrosion during use on any cobalt that has not been dissolved out. (col. 4, lines 20-24)

The secondary reference to Attard teaches a method of making porous metals. Attard teaches that porous material can be made from any one of a long list of candidate metals, including the 30 metals comprising "the first, second and third row transition row metals" and innumerable metal compounds including "for example, oxides, sulphides or phosphides." (p. 3, 2nd par.) Attard similarly provides a long list of diverse possible uses for porous metals:

"applications as follows: in sensors such as gas sensors, for example for carbon monoxide, methane, hydrogen sulphide, or in "electronic nose" applications, chemical sensors, for example for process control in the chemicals industry, and biosensors, for example for glucose or therapeutic drugs; in batteries, for example as anode and cathode electrodes; in fuel cells, for example as anode and cathode electrodes or solid electrolyte; in solar cells, for example as collectors or supports for organometallic species; in electrochromic devices such as display devices or smart windows; in field emitters, for example display devices or electronic devices; in electrocatalysis, for example in enzyme mimicry or "clean synthesis" of pharmaceuticals; in magnetic devices, for example magnetic recording media or giant magnetoresistive media; in optical devices such as non-linear optical media, evanescent wave devices, surface plasmon polariton devices, or optical recording media; for scientific applications such as in surface enhanced optical processes, chemical reactions in confined geometries, or physical processes in confined geometries; for chemical separations, for example in electrostatic precipitators or gas separators; and for use as catalysts, electrode material, fluid storage media, and sorbents" (p. 9, last par.)

without providing any guidance as to which metal is suitable for which use. Accordingly, the skilled person would have understood that Attard did not mean to imply that each one of the many metals he lists is suitable for each one of the many uses he lists. Attard instead simply meant that a wide range of materials can be made porous using his method, and that there are a wide range of uses for porous materials. Thus, the skilled person would have not considered adding cobalt and tin, included in Attard's list, to Richter's finished platinum electrode.

In fact, even if the skilled person DID consider adding Attard's tin to Richter's platinum, he still would not have arrived at the claimed catalyst formulation, because he would have omitted the claimed 1-48% cobalt in view of Richter's referring to cobalt as an “inactive component” to be “dissolved out”. The claimed combination of platinum, 1-48% cobalt, and tin is obtained only with hindsight from the present application, which discloses unexpected improvement in performance by including the cobalt (such as “a twenty times increase in peak current density” in par. [0027] of the published application).

The Office Action (p. 7, 3<sup>rd</sup> par.) cites MPEP 2144.06 and 2144.07 in asserting that selection of a known material based on its suitability for its intended use supports a *prima facie* obviousness determination. Applicant counters that this *prima facie* obviousness is overcome by the facts that: 1) the claimed cobalt and tin are **not known** in the cited prior art to be suitable for catalyzing oxidation of organic molecules (as explained above); 3) the primary reference to Richter **teaches away** from including the claimed cobalt by referring to it as an “inactive component” to be “dissolved out”; and 3) the present application notes **unexpected results** obtained by including the claimed cobalt with the platinum (quoted above) – made all the more unexpected by Richter's referring to the cobalt as an “inactive component” that must be “dissolved out”.

Therefore, claim 1 is patentable over the cited prior art.

#### **Dependent Claims 2, 7, 9-11, 13, 49-55 and 62**

The remaining claims all depend from base claim 1, which is patentable over the prior art as explained above. The limitations that the dependent claims add to claim 1 distinguish them further from the prior art. Therefore, the dependent claims, also, are patentable.

The application is therefore now be in condition for allowance, and allowance is requested.

Respectfully submitted,



Mitchell Rose, Patent Agent

Registration No. 47,906

JONES DAY

901 Lakeside Ave.

Cleveland, OH 44114

(216)586-7094

Date: 5/11/07